



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of : **MAIL STOP PETITIONS**

Hiroyuki YAMAOKA et al. : **Confirmation No. 2585**

Serial No. 10/751,450 : Docket No. 2004\_0007

Filed January 6, 2004 :

SILICON CARBIDE FIBER HAVING  
BORON NITRIDE LAYER IN FIBER  
SURFACE AND PROCESS FOR THE  
PRODUCTION THEREOF

**PETITION RE DRAWINGS**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Applicants hereby petition to hold the subject application as filed complete without drawings.

An Amendment deleting reference to the drawings accompanies.

It is apparent that the drawings are not needed for a filing date, since each and every feature recited in the claims is also set forth in the specification and is readily understandable therefor.

Figure 1 of the drawings, as described on page 5 of the specification, is a diagram showing the result of an analysis of boron concentration change from the surface of the precursor fiber to the inside thereof only for Example 1.

However, this boron concentration change from the surface to the interior of the claimed material is described throughout the specification in terms of concentration and slope, e.g. see paragraph [0049], Example 1 and disclosure on page 16, lines 1-9 for Example 2.

Thus, Fig. 1 is not required for a complete disclosure of the invention.

Figure 2 is merely a schematic description of the steps employed to produce the fiber of the present invention. However, the Examples provide sufficient information to enable one of ordinary skill in the art to practice the steps of the invention without a drawing.

For the foregoing reasons, it is respectfully requested that this application be accorded a filing date, since the drawings are not necessary for an understanding or for practice of the invention as claimed.

Accompanying this Petition is the \$130.00 Petition fee under 37 C.F.R. 1.17(h).

It is requested that this Petition fee be refunded upon the granting of the Petition.

Respectfully submitted,

Hiroyuki YAMAOKA et al.

By: Matthew M. Jacob  
Matthew M. Jacob  
Registration No. 25,154  
Attorney for Applicants

MJ/da  
Washington, D.C. 20006-1021  
Telephone (202) 721-8200  
Facsimile (202) 721-8250  
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**PRELIMINARY AMENDMENT**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Please amend the present application as follows:

## AMENDMENTS TO THE SPECIFICATION

Please amend page 5, lines 10-18 as follows:

[0017] Brief Description of the Drawings

[0018] Fig. 1 is a diagram showing the result of analysis of a boron concentration change from the surface of a precursor fiber to the inside thereof by Auger electron spectroscopy in Example 1.

[0019] Fig. 2 is an illustration which schematically shows steps of the generation of a silicon carbide fiber having a boron nitride layer in a fiber surface, provided by the present invention.

Please amend page 5, line 20 to page 6, line 14 as follows:

[0020] Detailed Description of the Invention

[0021] The present invention relates to a silicon carbide fiber which has, in a fiber surface, a boron nitride layer useful as a reinforcing fiber for a ceramic-based composite material and to a process for the production thereof. The silicon carbide fiber of the present invention has a central portion (silicon carbide phase) covering mechanical properties and a boron nitride phase covering interface function in a surface layer and near the surface layer, further has a slope constitution in which boron increases towards the surface layer and has a structure in which boron exists in the fiber surface and in the central portion in specific ratios respectively. Further,

it is presumed that the silicon carbide fiber of the present invention has a fiber structure in which the boron nitride layer has a layered structure which is parallel to the fiber surface. Accordingly, there can be obtained a fiber having an interface function excellent in oxidation resistance. In the present invention, unlike the above method of Sack et al., a surface layer having a high boron concentration is formed at a precursor step, as shown in Fig. 1, and it is reacted with a nitrogen-containing substance (e.g., nitrogen or ammonia) which is homogeneously diffused from the fiber surface. It is estimated that a boron nitride layered structure, which is parallel to the fiber surface, is formed as a result.

Please amend page 12, lines 15-17 as follows:

[0041] ~~Fig. 2 schematically shows steps of the generation of the silicon carbide fiber having the intended slope constitution, provided by the present invention:~~

REMARKS

The above amendment deletes all references to Figures 1 and 2 in the specification since they are not needed for an understanding of or to practice the invention.

Favorable action is now requested.

Respectfully submitted,

Hiroyuki YAMAOKA et al.

By: Matthew M. Jacob  
Matthew M. Jacob  
Registration No. 25,154  
Attorney for Applicants

MJ/da  
Washington, D.C. 20006-1021  
Telephone (202) 721-8200  
Facsimile (202) 721-8250  
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